MARCHANT

AUTOMATIC DIVISION LINE-UP

EFA

SERVICE INSTRUCTION BOOK

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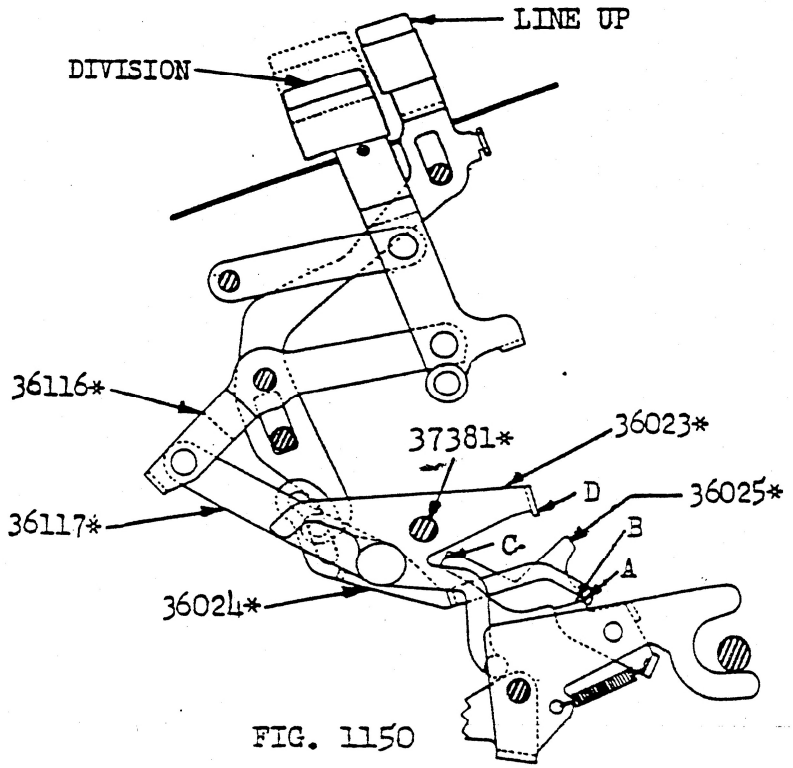

FIG. 1150

The Divisor Dividend Line-Up mechanism provides a means of automatically aligning the divisor and dividend. When the Line-Up Key is depressed simultaneously with the depression of the Division Key, a right Tabulator Shift is initiated after the Counter Clearance and prior to the Division operation.

DIVISION KEY When the Division Key alone is depressed the Counter Control Lever, 36023*, (Fig. 1150) is rocked clockwise about shaft 37381* by link 37117* and bell crank 36116*. As lever 36023* is rocked clockwise lever 36024 is pulled toward the left (as seen in Fig. 1150) causing hook "A" to engage form "B" and pull surface "C" of the Division Pinning Blocking Lever, 36025*, out of the path of ear "D". Since lever 36023* is pinned to shaft 37381* to which 36185* is also pinned a Counter Clearance operation is initiated, as described under "Clearance in Division" pages 713-714, (36185* performs the same function as 67020*), and consequently a division operation.

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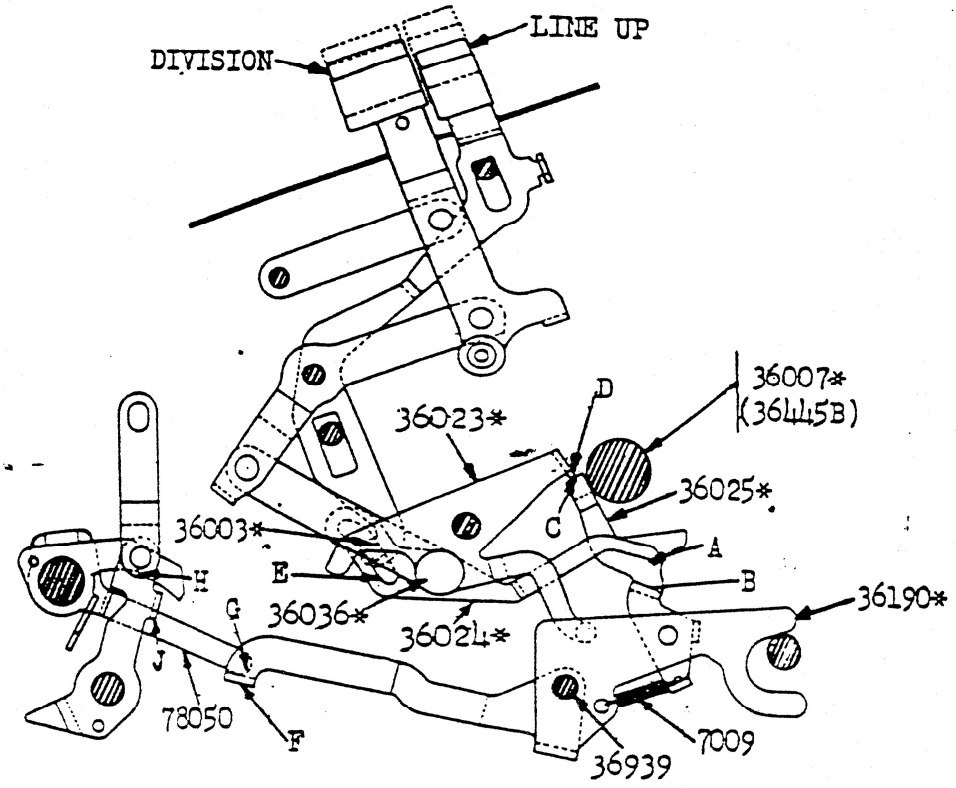

FIG. 1151

LINE-UP KEY When the Line-Up Key is depressed simultaneously with the Division Key stud 36003* (Fig. 1151) acting in slot "E" rocks lever 36024 counter-clockwise about stud 36036* raising hook "A" above form "C" so that blocking lever 36025* will not be rocked out from under ear "D" of 36023*.

Blocking lever 36025* is pivotally mounted on the Tab. Latch Release Bail, 36190*, and held clockwise against hub 36007* by spring 7009. Therefore, when lever 36023* is rocked clockwise by the division Key ear "D" contacts surface "C" forcing the blocking lever 36025* downward and consequently rotating the Tab. Latch Release Bail, 36190*, clockwise about tie bolt 36939. Ear "F" of bail 36190* underlies surface "G" of the Tab. Toggle Latch, 78050, so that as bail 36190* rocks clockwise latching surface "H" disengages ear "J" of the Tab. Toggle allowing the toggle to collapse thus starting a Tabulator shift as described under "Tabulator Mechanism" page 700 etc.

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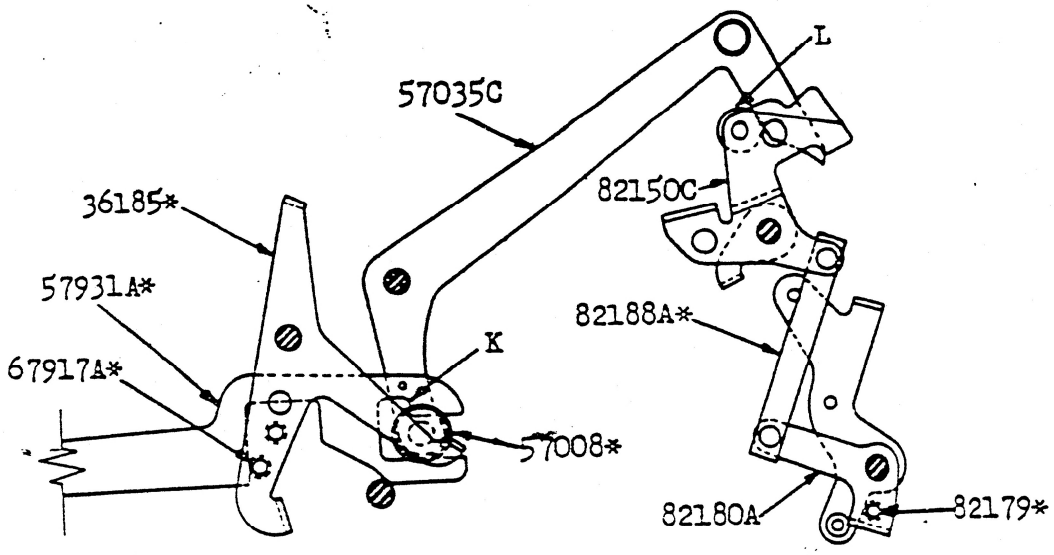

FIG. 1152

The depression of the Division Key initiates a Counter Clearance operation at the same time as the Tab. Starting Arm is tripped. However a shift is prevented at this time by the following means. The Counter Clear Release Link 57931A* (Fig. 1152) is pulled forward by stud 67917A* as lever 36185* rocks clockwise. Notch "K" engaging stud 57008* on lever 57035C rocks that lever clockwise so that surface "L" blocks the clockwise movement of interlock 82150C. Since bail 82180A is fastened to interlock 82150C thru link 82188A* counter-clockwise movement of bail 82180A is prevented and stud 82179* blocks the withdrawal of the Shift Clutch Release Dog from the Shift Clutch until the Counter Clearance is complete.

At the end of the Counter Clearance Cycle 57035C is rocked clockwise and since interlock 82150C is no longer blocked the Shift Clutch may now be engaged. The Tab. Starting Arm, 77545C, is connected to the Shift Connecting Link, 72025, thru yield spring 7583, therefore, when the block is removed from the Shift Clutch Release Dog tension on that spring pulls the Release Dog out of the Shift Clutch.

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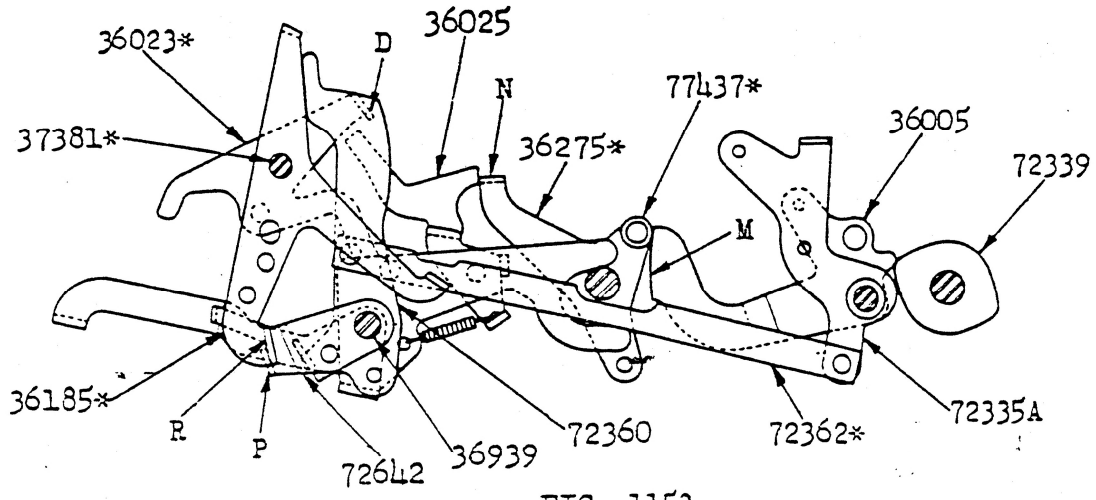

FIG. 1153

During the Counter clear cycle the Division Key is prevented from being fully depressed by ear "D" and surface "C" (Fig. 1151), therefore the Division Operating Lever, 37390B is prevented from rotating to its full clockwise position consequently delaying the division operation. During the first shift cycle the Restart Lever, 36005, (Fig. 1153), is rocked counter-clockwise by the Restart Cam, 72339 When 36005 is rocked counter-clockwise camming surface "M" in contact with roller 77437* rocks the Block Disengaging Lever, 36275*, counter-clockwise and ear "N" rocks blocking lever 36025* from under ear "D" of 36023*, however since the shift is taking place at this time the Division may not start as yet, therefore a second block is imposed as follows.

When the Shift Clutch Release Dog, 72335A, (Fig. 1153) is rocked out of the Shift Clutch at the start of a shift operation, the Shift Interlock, 72360, which is attached to the Release Dog through link 72362*, is rotated clockwise about tie bolt 36939. Ear "P" of Shift Interlock Link, 72642, is rocked upward to block the clockwise movement of ear "P" of the Division Counter Reverse Arm, 36185*. Since arm 36185* is pinned to shaft 37381* to which lever 36023* is also pinned the full de-

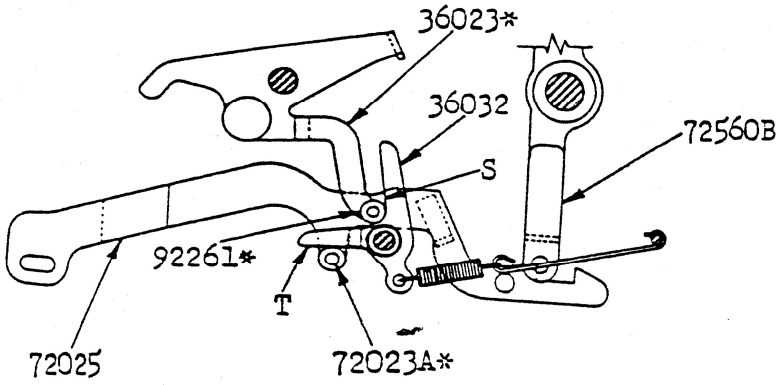

FIG. 1154

pression of the Division Key is prevented and consequently the full clockwise rotation of the Division Operating Lever thus delaying the start of the Division Operation until the Tab. Shift has been completed. When ear "R" is released by ear "P" at the end of the shift the Division Counter Control Assembly 36260 (which includes 36023*, 36185* etc.) is free to rotate to its full clockwise position under tension of spring 7624 on the Divisiom Operating Lever, 37390B acting on the roller on the Division Key as described under "Easy Division, page 825, etc." The remainder of the Division operation has not been changed and is described in other sections of the Instruction Book.

INTERLOCKS To prevent the initiation of a shift by the Tabulator or the Manual Shift Keys during a division operation 36032 has been provided. During division when 36023* is rocked clockwise (Fig. 1154) surface "S" follows roller 92261 causing 36032, under tension of spring 7356 to rotate counter-clockwise. Arm "T" contacts stud 72023A* and rocks Shift Connecting Link, 72025, downward and out of engagement with the Shift Control Assembly, 72560B. This interlock has the same function as link 37171* on 37380D.

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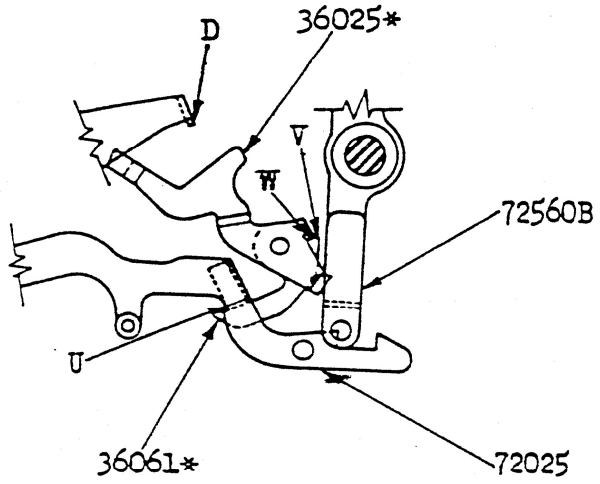

FIG. 1155

If the Carriage is shifted to either end position by the Manual Shift Keys and the key is held down until after the shift is complete the notch in the Shift Connecting Link 72025 (Fig. 1155) will be held out of engagement with ear on the Shift Control Assembly 72560B by the Shift Terminating mechanism. If the division and Line-up Keys are depressed at this time blocking lever 36025* will be forced down rocking bail 36190* clockwise to trip the Tabulator. However, since the Shift Connecting Link is not engaged with the Shift Control Assembly the shift cannot start and the machine will become inoperative. Therefore when the Shift Connecting Link 72025 is rocked out of engagement with the Shift Control Assembly 72560B ear "U" contacts interponent 36061* notch "V" of which engages ear "W" and rocks blocking lever 36025* out of the path of ear "D" of 36023* preventing the tripping of the Tabulator.